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| U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT Assistant Secretary for Housing-Federal Housing Commissioner TO: DIRECTORS, HOUSING DIVISION DIRECTORS, MULTIFAMILY DIVISION DIRECTORS, SINGLE FAMILY DIVISION | Series and Series Number (Supersedes issue dated September 19, 1995) MATERIALS RELEASE NO. 1201d |
| | ISSUE DATE: September 10, 1998 |
| | REVIEW DATE: September 10, 2001 |

SUBJECT: 1. Product Upson Full Wall Panel, Monowall

2. Name and Address
of Manufacturer Niagara Fiberboard, Inc.
Box 520
140 Van Buren Street
Lockport, NY 14095

Data on the nonstandard product, described herein have been reviewed by the Department of Housing and Urban Development (HUD) and determination has been made that it is considered suitable from a technical standpoint for the use indicated herein. This Release does not purport to establish a comparative quality or value rating for this product as compared to standard products normally used in the same manner.

This Materials Release cannot be used as an indication of endorsement, or approval by HUD of the described product, and any statement or representation, however made, indicating such approval or endorsement by HUD is unauthorized. See Code 18, U.S.C. 709.

Any reproduction of this Release must be in its entirety.

USE: Interior Wall Finish Panel

DESCRIPTION:

Monowall panels are composed of cellulose fiber plies which are laminated with a water-resistant adhesive into panels. The panels are up to 8' wide by 40' long. Panels are available with an optional factory applied vapor barrier that has a vapor permeability rating of 0.5 perm. The panels have a white factory finish face, and a plain back.

PHYSICAL PROPERTIES:

Monowall panels shall comply with the property requirements in the following Table:

| PROPERTY | | | |
|------------------------------------|---------|---------|---------|
| <u>ASTM D 1037</u> | | | |
| Thickness (in) | Min | | 0.337 |
| Density (lb/cu ft) | Average | | 36 |
| Modulus of rupture (psi) | MD* | Min | 2100 |
| | CD** | Min | 1150 |
| Modulus of elasticity (psi) | MD | Min | 289,000 |
| | CD | Min | 113,000 |
| Tension parallel to surface (psi) | MD | Min | 2,000 |
| | CD | Min | 950 |
| Lateral nail resistance (lb) @1/4" | MD | Average | 80 |
| | MD | Average | 115 |
| Nail pull-through (lb) | Average | | 159 |
| Water absorption (%) | | 2 hr | Max 14 |
| | | 24 hr | Max 46 |
| Thickness swelling (%) | | 2 hr | Max 5 |
| | | 24 hr | Max 24 |
| Linear expansion (%) 50% - 90% RH | MD | Max | 0.13 |
| | CD | Max | 0.43 |
| Moisture content (% wt) | Range | | 7-8.5 |
| ASTM D 2529 (Mullen) (psi) | Min | | 1100 |
| Thermal resistance (R-value) | Average | | 0.78 |
| ASTM E 84 Flame spread rating | Max | | 160 |
| Fuel contributed rating | Max | | 90 |
| Smoke developed | Max | | 60 |
| Weight (lb/1000 sq. ft.) | Average | | 1013 |

*MD = Machine direction ** CD = Cross machine direction

LIMITATIONS:

Monowall is not recommended as a base material for the application of ceramic, plastic, or metal tile, or for use in bathrooms, kitchens or other areas subject to frequent wetting or continuous high moisture conditions. Monowall is not recommended for use near furnaces or gas-fired water heaters.

INSTALLATION:

Installation of Monowall shall conform to the manufacturer's printed instructions and the following:

1. Monowall panels shall be attached to studs spaced a maximum of 16" o.c. All edges shall be backed by studs, plates or solid blocking. The minimum fastening shall be 1 3/4" long 5d nails or 16 ga., 7/16" crown by 1 1/4" long staples. Space the fasteners 6" o.c. at the panel edges and 12" o.c. at intermediate supports. Staples shall be driven with the crown parallel to the long dimension of the framing member.
2. For combined adhesive and nail/staple application, the adhesive shall be a PVA wallboard adhesive, or an adhesive certified as meeting Use of Materials Bulletin No. 60a. The adhesive application shall conform to the printed instructions of the manufacturer of the adhesive. The adhesive shall be applied full length to all framing members. Apply a double bead where two edges or ends occur on the same framing member. Install a minimum of 5d nails or 16 ga. by 7/16" crown by 1 1/4" long staples. Space the fasteners 6" o.c. at the panel edges and 12" o.c. at intermediate supports. This application satisfies the requirements for a braced wall section in new construction.
3. Walls may be built using FOAMSEAL F-2000 urethane adhesive without any additional fastening under the following conditions:
 - a. The walls are built face down and horizontal in a manufacturing plant.
 - b. The adhesive is installed in accordance with the adhesive manufacturer's printed instructions for attaching wallboard with FOAMSEAL F-2000 to wood studs.

4. The following application satisfies the requirements for a braced wall section in new construction when single panels are 24' long or longer. Fasten the panels with 5d nails or 16 ga, 7/16" crown by 1 1/4" long staples spaced 3" o.c. along the edges, and 6" o.c. at intermediate supports.
5. The panels shall be painted with a good quality interior paint. If wallpaper is used, seal panels with varnish size, or a primer-sealer before applying the wallpaper.
6. Provide 1/8" to 1/4" clearance between panels. Edges at joints shall be covered with moldings.

QUALITY ASSURANCE AND CERTIFICATION:

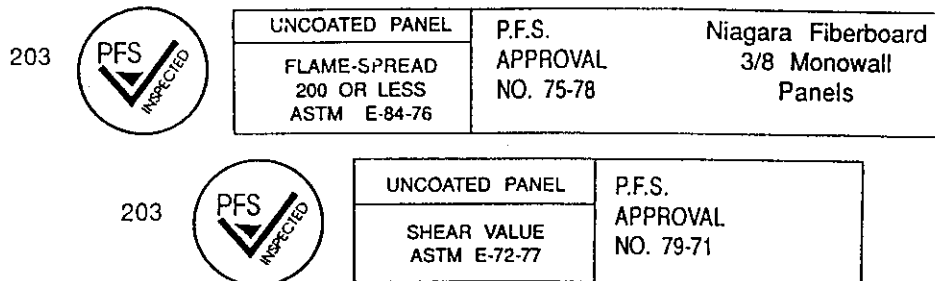
Niagara Fiberboard, Inc. (NFI) shall certify that the Monowall panels conform to the requirements of this Materials Release (MR). PFS Corporation shall validate NFI certification that Monowall meets the requirements of this MR.

PANEL MARKING:

The panel shall be marked with the following:

- a. The registered PFS mark.
- b. Flame Spread Rating 200 or less.
- c. HUD MR 1201d.
- d. For interior use only.

Each panel certified as conforming to this Materials Release shall be stamped with the following indication of conformance.



FOR INTERIOR USE ONLY

MR 1201d

WARRANTY:

Niagara Fiberboard, Inc. warrants the Upson Monowall panels against any defects due to faulty material and workmanship in the manufacturing process for a period of four (4) years from the date of installation.

The liability of NFI for the first four years under this warranty shall be limited to replacement of any defective panels and the cost of installation; or, at the option of NFI, payment in lieu thereof.

From the fifth through the twentieth year, NFI will make an allowance on a pro-rated basis starting at 95 percent and decreasing in increments of 5 percent each year to the end of the effective warranty period. It will be at the discretion of NFI as to the measures to be taken to provide suitable repair, restoration, replacement or refund of the purchase price in the event of failure of the Monowall.

This warranty is for the exclusive benefit of the owner of the structure in which the product is installed, and inures to the benefit of each successive owner. Niagara Fiberboard, Inc. will not be liable under this warranty in respect of any claim unless written notice of the claim is filed with Niagara Fiberboard, Inc. at Lockport, New York, promptly after the discovery, and Niagara Fiberboard, Inc. is permitted to examine the product.

The manufacturer's warranty does not relieve the builder, in any way, of responsibility under the terms of the Builder's Warranty required by the National Housing Act, or under any provisions applicable to any other housing programs. A copy of the manufacturer's warranty shall be furnished by the builder to the owner.

MANUFACTURER'S RESPONSIBILITIES:

Issuance of this Materials Release (MR) commits the manufacturer to fulfill, as a minimum, the following:

1. Produce, label and certify the material, product or system in strict accordance with the terms of this MR.
2. Provide necessary corrective action in a timely manner for all cases of justified complaint, poor performance or failure reported by HUD.
3. When requested, provide the Office of Consumer and Regulatory Affairs, Manufactured Housing and Standards Division, HUD Headquarters, with a representative list of properties, in which the material, product or system has been used, including complete addresses or descriptions of locations and dates of installation.
4. Inform HUD in advance of changes in production facilities, methods, design of the product, company name, ownership or mailing address.

EVALUATION:

This MR shall be valid for a period of three years from the date of initial issuance or most recent renewal or revision, whichever is later. The holder of this MR shall apply for a renewal or revision 90 days prior to the Review Date printed on this MR. Submittals for renewal or revision shall be sent to HUD Headquarters. Appropriate User Fee shall be sent to:

U.S. Department of Housing and Urban Development
Technical Suitability of Products Fees
P.O. Box 954199
St. Louis, MO 63195-4199

The holder of this MR may apply for revision at any time prior to the Review Date. Minor revisions may be in the form of a supplement to the MR.

If the Department determines that a proposed renewal or supplement constitutes a revision, the appropriate User Fee for a revision will need to be submitted in accordance with Code of Federal Regulations 24 CFR 200.934, "User Fee System for the Technical Suitability of Products Program," and current User Fee Schedule.

CANCELLATION:

Failure to apply for a renewal or revision shall constitute a basis for cancellation of the MR. HUD will notify the manufacturer that the MR may be canceled when:

1. conditions under which the document was issued have changed so as to affect production of, or to compromise the integrity of the accepted material, product, or system,
2. the manufacturer has changed its organizational form without notifying HUD, or
3. the manufacturer has not complied with responsibilities it assumed as a condition of HUD's acceptance.

However, before cancellation, HUD will give the manufacturer a written notice of the specific reasons for cancellation, and the opportunity to present views on why the MR should not be canceled. No refund of fees will be made on a canceled document.

This Materials Release is issued solely for the captioned firm,
and is not transferable to any person or successor entity.
